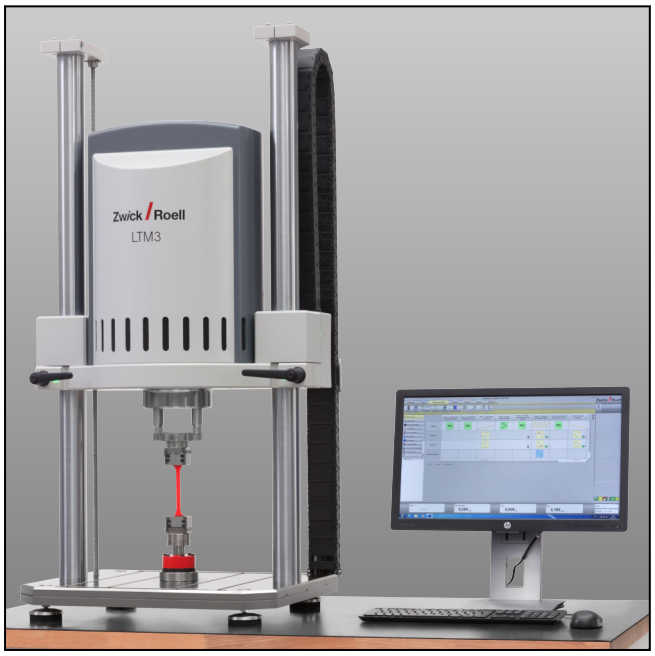
Product Information

LTM 3 and LTM 3 HR electro-dynamic testing machine

CTA: 161148 161159



LTM 3 testing machine as table-top model

LTM 3 testing machine as floor-standing model with base

Application

The LTM is an electrodynamic testing machine with a drive based on linear motor technology. ZwickRoell's newly developed patented drive concept enables the LTM to be used for both dynamic and static materials and components testing. The low moved mass of the drive provides ideal conditions for performing fatigue tests with tensile, compression, and flexural loading.

The LTM is used in industries where oil-free and low-noise drive technology are preferred, for example, in the medical industry for standard-compliant testing of hip joint, knee, or dental implants.

Other typical application examples include fatigue and durability tests on standard specimens made of plastics, fiber composites and metals.

For components testing, the LTM is equipped with a T-slotted plate that can be adapted to components, and test fixtures quickly and easily as standard.

Intuitive operation via testXpert R and testXpert III software makes the LTM a genuine all-rounder for industrial purposes as well as for research and teaching at university level.

Features

- Oil-free and low-maintenance drive technology with low operating and maintenance costs
- Travel measuring system coaxial to the test axis and positioned close to the specimen
- Precise control via 10kHz frequency, enabling rapid reaction to spontaneous events
- High-precision, fatigue-resistant 2-column test frame with integral T-slotted plate and collection trough.
- Demand-based and steplessly controlled air cooling for low-noise operation
- Suitable for static testing as well due to extremely quiet operation
- Can be used with temperature chambers
- As HR version with enhanced dynamic performance

PI745 0218

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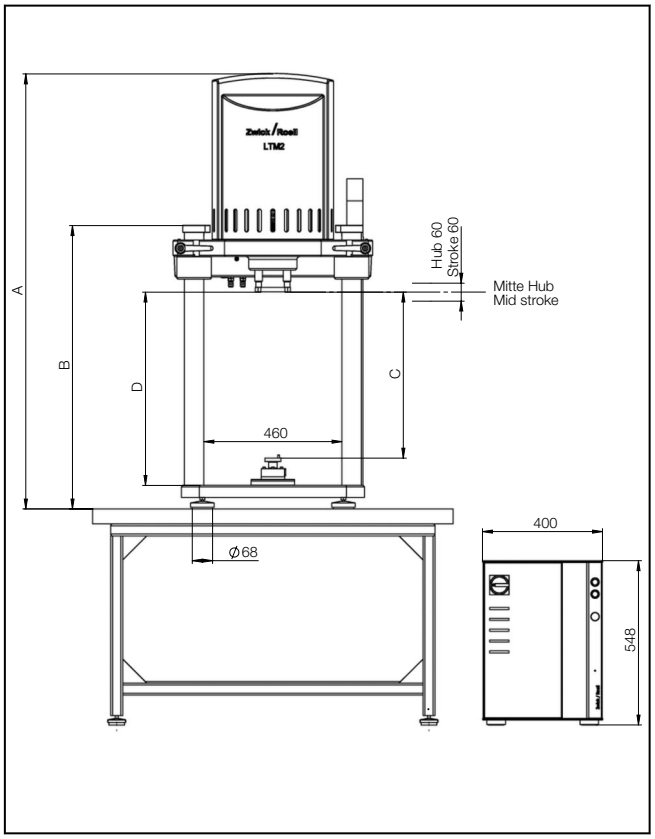
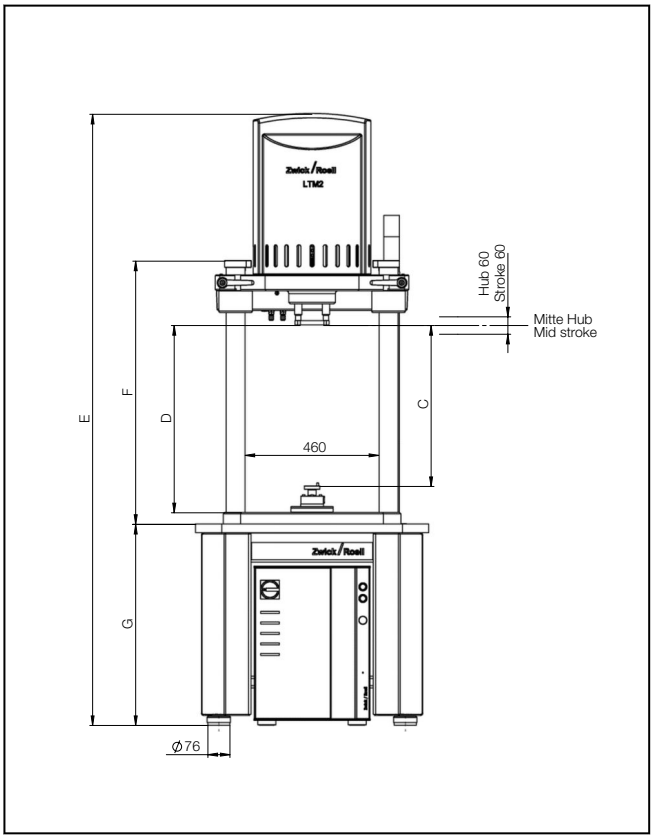
Advantages

- High dynamic performance due to low moving mass
- Wide speed-range enables dynamic as well as quasi-static tests
- Low operating and maintenance costs with oil-free drive technology without additional supply feeds
- Motor-driven traverse adjustment for convenient operation
- safe setup mode as per EN 60204-1 via speed reduction to 10 mm/s
- Simple manual crosshead locking via hand lever with electrical monitoring and LED status indicator
- Long piston-stroke (60 mm) enables wide variety of applications
- Operator-friendly testXpert R testing software with preset controller settings and availability of free controller definition for dynamic testing requirements
- Intelligent testing software testXpert III featuring intuitive operation for static testing requirements.
- Flexible use of specimen grips and fixtures over the entire dynamic product range
- The electromagnetic drive was designed specifically for the speed range relevant to testing technology and features exceptionally quiet operation, optimum control quality and extremely high positioning accuracy
- The travel measuring system is coaxial to the test axis and mounted near the specimen in the piston rod, enabling high positioning repeatability and precise piston travel measurement

CTA: 155399 155400



Drawing: LTM testing machine, table-top model



Drawing: LTM testing machine with optional base

All data at ambient temperature.

We reserve the right to make technical changes in the course of ongoing development.

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Technical data

Type Item No.	LTM 3 Standard 1045235	LTM 3 + 170 mm[1)] 1053564	LTM 3 HR Standard 1056879	LTM 3 HR + 170 mm[1)] 1058953	
Fmax, dynamic	± 3000	± 3000	± 3000	± 3000	N
Fmax, static continuous	± 2300	± 2300	± 2300	± 2300	N
Piston stroke	60	60	60	60	mm
Positioning accuracy and repeatability	± 2	± 2	± 2	± 2	µm
Speed range	1	1	1	1	mm/min
	1	1	1.5	1.5	m/s
Maximum frequency[2)]	100	100	120	120	Hz
Max. noise level at 1 m distance[3)]	< 63	< 63	< 63	< 63	dB(A)
Typical noise level at 1 m distance[3)]	< 46	< 46	< 46	< 46	dB(A)
Test frame					
Overall height of testing machine, max. (A)[4)]	1765	1935	1765	1930	mm
Overall height of the testing machine with optional base, max. (E)[4)]	2414	2584	2414	2590	mm
Overall height of the test frame, max. (F)	945	1345	945	1310	mm
Overall height of the test frame with feet, max. (B)	986	1386	986	1345	mm
Overall width of the test frame	665	665	665	665	mm
Overall depth of the test frame	525	525	525	525	mm
Column diameter	65	65	65	65	mm
Frame stiffness at 500 mm crosshead separation	40	40	40	40	kN/mm
Height, base (G)	692	692	692	692	mm
Width, base	800	800	800	800	mm
Depth, base	700	700	700	700	mm
Overall weight[5)]	305	310	305	310	kg
Test area					
Test area width	460	460	460	460	mm
Test area height without load cell, max. (D)[4)6)]	870	1040	870	1040	mm
Test area height with load cell, max. (C)[4)6)]	550	950	550	950	mm
Top crosshead adjustment	Motorized				
Top crosshead clamping	Manual				
Crosshead clamping electrically monitored	Yes, with signal indicator				

1) Extended load frame - required for use with a temperature chamber

2) Depending on load ratio (r-ratio) and test amplitude

3) Depending on output required, the environment, test arrangement, type of test, frequency of the specimen, determined in a free field to DIN EN ISO 11205

4) Highest crosshead position

5) Testing machine only, without electrical cabinet, tools, and options

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6) Median piston position

testControl II measurement and control electronics		
Control frequency	10 kHz	
Measured-value acquisition	10 kHz, 24 bits, arithmetical	
Slots	5 x module bus	
PC interface	GigaBit Ethernet	
Integrated safety concept	- 2-channel specification for maximum safety - interface for interlocked safety doors - Emergency Stop loop interface	
Display-equipped remote control	- set-up or testing mode - Emergency Stop button - key-switch for switching between setup and testing modes	
Dimensions		
Height	550	mm
Width	400	mm
Depth	520	mm
Approx. weight	50	kg
Protection class	IP 54	

Installation conditions

Type	LTM 3	LTM 3 HR	
Operating temperature	+10 to +30	+10 to +30	°C
Storage temperature	-25 to +50	-25 to +50	°C
Humidity (non-condensing)	20 to 90	20 to 90	%
Electrical supply			
Power supply voltage	230 V, 1 Ph	400 V, 3 Ph	N/PE
Power supply frequency	50/60	50/60	Hz
Power rating	3.5	11.1	kVA
Back-up fuse	16 T	16 T	A
Plug	Schuko	CEE	
Integrated ambient-air cooling-unit			
Exhaust air heat[1)]	0 to 0.8	0 to 0.8	kW
Max. air circulation volume	2360	2360	m^3/h

1) Depending on output required

Maximum transport height

Including safety device, base, without transport pallet

Version	Max. transport height [mm]
Standard height	1930
Increased height version	2120

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Load cell

Description	Item number
Nominal force ± 3 kN[1)]	**1045285**

1) Accuracy Class 0.5 to EN ISO 7500-1

Safety devices

Description	Item number
4-sided safety device made of steel sheet, front safety door with Makrolon panel, electrical monitoring and interlocking, standard height	**1055502**
4-sided safety device made of steel sheet, front safety door with Makrolon panel, electrical monitoring and interlocking, increased-height version[1)]	**1055506**
Simple safety guard	**1032359**

1) Extended load frame (required for use with a temperature chamber)

Options

Description	Item number
Table-top model	**Standard**
Base (~85 kg)	**1055466**
Supplementary mass (+60 kg) for particularly dynamic applications	**1055467**
Air spring elements - for reduction of vibrations, shocks and structure-borne noise[1)]	**3001895**
Tool set for equipping and setting up the testing machine	**1036089**

1) Overall height increases by approx. 50 mm